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ABSTRACT

This paper presents a progress report from a research program aimed at elucidating communication problems which arise among citizens and government agencies during the development of regional environmental policy. The eventual objective of the program is to develop a paradigm for evaluative research in communication that will provide for the invention and testing of novel procedures with potential for improving communication. Local citizens (n=310), community leaders (n=40), and agency professionals (n=78) residing in a region of Southwestern North Dakota that is undergoing rapid development of vast reserves of easily strip-mined lignite coal were selected as subjects. Conceptualization of this three-entity system focused upon community leaders as information brokers between agencies and the general population respondents. The utlimate concern was to better specify conditions which relate to a higher degree of accuracy between the three entities. An initial analysis of accuracy levels showed that considerable improvement was possible. In general, the concepts of primary concern-stereotyping and collective involvement--did not fulfill expectations of strong, consistent relationships to accuracy, particularly when arrayed with other variables in the path analysis. (Author/WR)

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COORIENTATIONAL ACCURACY DURING REGIONAL DEVELOPMENT OF ENERGY RESOURCES: PROBLEMS IN AGENCY-PUBLIC COMMUNICATION

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INTRODUCTION

In the past, our national quest for ever-expanding energy resources has rarely, if ever, been a simple or easy matter for people in the resource region being opened to exploitation. Laycock (1969), for example, recites a litany of energy development horror stories well known to environmentalists and development agencies alike. Others (Bolle, 1971; Bultena, et al., 1973; Ludtke, et al., 1970; Stamm & Bowes, 1972; Stamm, 1972) point to common deficiencies recurrent in public understanding of natural resource development and the likely consequences of such activity.

Recent energy problems have spurred development of energy alternatives once considered too experimental, too uncertain and, most commonly, too harmful to the environment to pursue. Several of these alternatives, however, are undergoing rapid development in the southwestern quadrant of North Dakota, a sparsely settled agricultural region holding vast reserves of easily strip-mined lignite coal. Past deficiencies in public understanding seem likely to be repeated and intensified in the present atmosphere of energy "crisis."

Given the unfavorable political-social conditions, and the inadequacy of small, unspecialized local media, the purpose of our "social impact" study was to describe current levels of communication in the system and identify any conditions that account for variance in communication levels. Our first task, then, was to define conditions postulated to contribute to variance in our communication criteria. Results of the first task have been reported in an earlier paper (Bowes and Stamm, 1974), so this paper will concentrate largely on results from the second.

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Our first question was to consider what major population subgroups are involved in resource development communication. In a homogeneous and rural state like North Dakota, this kind of activity typically follows a path from government agencies to community leaders and eventually to the general public. Information on public sentiments usually traverses the reverse path. The presence of county water management boards, land use councils and soil conservation committees comprised of community leaders formalizes these individuals as information brokers between citizen and government agencies in resource development matters. Extension and soil conservation agents, U.S. Bureau of Reclamation field representatives and personnel of the state water commission, while often in contact with the general public directly, typically work through community leaders on questions of regional development and environmental impact.

Such patterns have long been noted in rural societies or have been implied in studies of opinion leadership (cf. Rogers, 1972). These studies though, have usually considered (a) only one link at a time in the dissemination chain (from innovator to opinion leader or from opinion leader to the majority of the populace) and (b) rather specific, concrete objects of common interest (e.g., weed sprays, hybrid corn, drugs, outdoor toilets). Moreover, these studies have as a goal agreement by all concerned that certain innovations or practices should be used or, if harmful, discontinued.

Few of these studies have examined diffuse, controversial subjects, such as regional development, where matters under study have at best debatable merit (or harm) and complex consequences. All relevant linkages in the communication system should be examined, especially in complex, fast moving situations where assuming certain links to be operating well is risky. Finally, because outcomes are of legitimately debatable promise, the goal of communication ideally should not be agreement, but rather one of attaining accuracy, where each party in the system perceives correctly the outlook of others on regional development, energy development priorities. Ideally, this goal would serve to minimize perceptual distortion and maximize cognitive overlap among groups involved, enhancing adequate public debate and discussion on resources exploitation.

Coorientation Model

To meet these criteria for communication system evaluation, we employed as a conceptual framework a somewhat revised model of coorientation as originally

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proposed by Chaffee and McLeod (1968). In its original form, this model tests for mutuality of perceptions regarding the attributes of some object or situation between two individuals or groups. Grunig (1972) effectively used this model to detect misperceptions existing between a community development agency and their low-income clientele regarding what each group perceived as acute problems of low-income citizens. The authors more recently used this model to examine the perceptual congruency between the public's selection of the costs and benefits of a regional water management scheme and what the public perceived the agency's selection to be (Ludtke, et al., 1970; Stamm and Bowes, 1972).

Results of this earlier (1970) investigation showed several points important to the present study. First, considerable differences were apparent between the public and community leaders as to the advantages of several flood control alternatives. Community leaders, in contrast to the public, tended to favor the most costly and most environmentally destructive of the proposals. Secondly, the congruency of the public's views on flood control alternatives with what they estimated to be those of the development agency (Corps of Engineers) was very high for benefits but unclear (many subjects indicated "don't know" for estimates of agency views) for the disadvantages of the project. The implication is that agency information tended to accentuate the positive and skimp on the problems of the project. Finally, local media were without exception deficient in their coverage of salient facts and criticism of flood control proposals.

The (Ludtke, et al.) findings also hinted at strong deficiencies in agency-to-public communication. Evidence of growing public dissatisfaction with agency policy became apparent late in the project and much to the surprise of the planning engineers, indicating that public-to-agency communication was also deficient. Moreover, differences between the public and community leaders were strong across most attitudinal variables, a somewhat surprising finding, given the close-knit, small-town setting of this investigation.

In the present study, expansion of the coorientation paradigm allowed us to incorporate more than the traditional two entities typically involved in coorientational comparisons, yet preserved the basic coorientational relationships which have in past work been sensitive to communication problems. An earlier attempt at this modification (Groot, 1970) demonstrated good utility in describing a three-group information system (researchers, extension agents and farmers) basic to the

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diffusion of new agricultural practices. Employing much of the same design, we applied the framework to a three-group network comprised of general population respondents, community leaders and agency personnel.

The basic model is shown in Figure 1. As in previous applications, three primary relations are considered:

1. Agreement or the extent to which group members' orientations toward a common referent actually overlap.
2. Accuracy or the extent to which group members are able to correctly estimate the orientations of the group other.
3. Congruency or the degree to which group members think they view a common referent in the same manner as other groups.

Conceptually, our interest in community leaders was limited to their position as information brokers between agencies and the general population respondents. Consequently to affect necessary simplifications in design,[1] two sets of relationships (general sample-community leaders; agency-community leaders) were dropped from the model as originally employed by Groot. Thus four relationships remained: (1) general sample-agency, (2) community leaders-general sample, (3) community leaders-agency, (4) agency-general sample.

Our basic concern was to better specify conditions which lead to improved accuracy, the model described above providing the necessary criterion measure (coorientational accuracy) to this end. We have already reported an initial analysis of accuracy levels among the three groups involved which showed considerable improvement was possible (Bowes & Stamm, 1974). Basic conclusions of this analysis[2] were:

1. Accuracy was the most discrepant relationship in comparison to agreement and congruency for the same model linkages. In other words, respondents were farther off, generally, in estimating the positions of other groups involved in regional development decision making than they thought (congruency) or which actual measurement of group differences disclosed (agreement). The

[1] Deletion of questionnaire items which assess these relations was necessary due to the press of other information to be obtained during the interview period.

[2] Basic methodology and sample characteristics for this analysis are discussed in the methodology section of this paper. Detailed discussion of the findings is in

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potential for misunderstanding during complex and fast-moving change that this finding suggests is rather great. These findings are summarized in Table 1.

2. Following the concept that community leaders served as information brokers between agencies and public, our expectation was that they would evidence greater accuracy both with the general public and agencies than these two groups would show with each other. As the comparisons of Table 2 indicate, this was not the case. Accuracy was not improved by community leader intervention.

For both conceptual and practical reasons underscored by the above findings our present attention and the balance of this study deal with identifying antecedents of accuracy. Our choice of predictive constructs rests initially with two areas: (1) stereotyping and (2) collective involvement.

Coorientation Antecedents--Stereotyping

The pertinence of stereotyping as an antecedent of accuracy is suggested forcefully by current events in the State of North Dakota as well as investigations into the conceptual implications of this phenomenon principally in work on person perception. Considerable press coverage[1] and hearsay in North Dakota suggest increasing stereotyping as interest groups tend to polarize about the issue of resource development. Well before the current interest in the state's coal resources, public opinion over wide areas of the state was being divided and organized concerning a large scale irrigation project which has resulted in allegedly serious environmental depredations. Many of these same groups--pro-development or pro-environmental preservation--have extended their interests to the promised energy development in the western portion of the state. It is not possible, from anecdotal evidence, to gauge well how this climate has affected the accuracy opposed groups have in perceiving the orientations of others. However, press reports of factional squabbling and lobbying efforts are indications of problems of this type.

The research literature is not unanimous in labeling stereotype formation as a cause of inaccuracy nor is it in agreement about whether accuracy is situation

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the results of an earlier paper by the authors (Bowes & Stamm, 1974).

[1]Press commentary circulating in the sample region had been monitored and collected for a year prior to this investigation.

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specific or a more generalized ability. Gage (1952), for example, found that stereotypical predictions (made on the basis of knowing the undergraduate major of the subjects judged) were more accurate than those based on real contact with the stimulus persons. Other early work (Allport, 1937) notes a distinction between accuracy predictions made for a group average and those predictions made for individuals. Moreover, Stone, Gage and Leavitt (1957) found a negative relationship between accurate perception of individuals and those based on a generalized other (group, class, etc.). Cline and Richards (1960) suggest that these two classes of accuracy judgment are components of a more general accuracy which may have other components not yet recognized.

These studies tend to treat stereotyping as a kind of accuracy implied in the judgment of groups rather than as more distinct phenomena which mediate observation of events and resultant accuracy of perception. Carter (1962), however, demonstrated several components of stereotyping which give the variable greater conceptual distinctness from accuracy:

1. When attributes which comprise an image are possessed by the perceiver in equal amounts, this is homogenization of an image.
2. Assignment of the full amount attributes to the image is an instance of polarization.
3. When the polarized, homogenized image persists over time, it is an instance of fixedness.

Carter was able to show that homogenization and polarization exerted rather independent effects upon political communication. Respondents having polarized and homogenized images of political candidates showed lower interest in and a lower rate of talking to neighbors about the election than those with only a homogenized image.

More recently, Stamm, et al. (1974) investigated the relationship of homogeneity and polarization of attributes to coorientation indices. Rather than using a stereotyping framework, the direction of assignment was reversed, individuals in the group being assigned to attributes rather than the other way around. Results were unclear regarding the effect of homogeneity and polarization. We have retained these components in our present study, but have cast them in a stereotyping rather

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than reification framework. The reasons for this shift are discussed later.[1]

In the Stamm, et al. (1974) study the working assumption was that polarization and homogenization would be negatively related to accuracy. Carter (1962), however, demonstrates conceptual and operational independence of two of these components, suggesting that homogenization might be a stage in image formation, not a necessary or sufficient condition for a stereotype. Polarization, on the contrary, provided sufficient conditions (by virtue that when attributes are polarized they are also homogeneous with respect to each other). Thus our expectations are that polarization would be a greater contributor to inaccuracy than homogenization.

Coorientation Antecedents--Collective Involvement

Our interest in groups occurred for several reasons. In terms of ongoing state events, debate over resource development has heavily involved interest groups, both pro and con, on the issue.

Conceptually, in light of our previously discussed interest in stereotyping and accuracy, the effect of one's group involvement in the state's energy problems poses several interesting questions. Does group participation serve to constrain perceptions of others involved in development either in terms of information received through the group or group reinforcement and sanctioning of certain information over others? Should this rationale have merit, we might expect group participation to lead to stereotypical behavior. Further, does group participation show influence on accuracy, either directly or indirectly through its effects on stereotyping? Finally, should we expect different levels of group involvement to differentially aid or retard accurate perceptions?

The communication literature is rich in material noting the conditioning influence of group affiliation (formal and informal) on communication. Studies (Shils & Janowitz, 1948; Riley & Riley, 1959; Asch, 1951; Kelly & Volkart, for example) indicate the resistance of groups to information contrary to their beliefs as well as their power in suggesting to members what to expect and how to react to messages directed toward them. Other work (Weiner, 1958; Flament, 1959) notes the relationship of stimulus ambiguity and one's uncertainty about his own responses to group influence. Results ——————→

[1] Response variance represents a confounding of homogenization and stereotyping and so was considered of reduced conceptual utility in this study. Primary interest centered on homogenization and stereotyping.

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generally support the notion that group influence is enhanced under these conditions. To draw a parallel, complex, ambiguous events facing our respondents seem a ripe setting for the exercise of group influence.

Little is in the literature to guide our suppositions about levels of group involvement. The bulk of studies discussed above made rather obvious attempts to form groups in the laboratory or find existing organizations. Little has been said of more loosely knit social confederations which may only discuss energy development as opposed to taking action on the problems in a concerted manner. Work by Chaffee & McLeod (1971), in discussing "social" predictors of political information use (here, political pamphlets), found that individuals discussing gubernatorial race in Wisconsin "often" or "sometimes" had a higher request rate for political literature than those "rarely" or "never" discussing the campaign. Consequently, we have some support for the idea that discussion (actual or anticipated) in informal settings affects information seeking. We don't know, though, what effects this information had on recipients in perceiving group others or in altering political stereotypes.

The last portion of our analysis is a more speculative venture in terms of testing not only the predictive vitality of stereotyping and two "levels" of group involvement in energy use matters against other, mostly traditional measures of information acquisition, but also an attempt to construct a hypothetical cross-sectional model of their interplay. The variables comprising this analysis were of three types: (a) information inputs (press readership, agency contact, group participation, etc.); (b) stereotyping (polarization, homogenization); (c) evaluative (perception that agency listens, adequacy of information, self-report familiarity with agency programs, etc.); and (d) coorientational accuracy. These and the model into which they were cast are discussed in greater detail later in this paper.

METHODS

Sampling

A variety of procedures were used to generate samples of the three populations forming the basic groups of this study. General population respondents were selected according to a proportionate area probability sample in the Knife River Basin, North Dakota. This five-county area provides a rather good cross-section of small town residents, farmers and ranchers who comprise the primary population

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groups of the western half of the state. Moreover, the locale is the first to be exploited for stripmined coal and to serve as a site for large generating stations. Community leaders were selected systematically from lists of leaders compiled from key information in the region and directories of local and county officials. Leaders were identified by location and drawn into the sample proportionate to population density. The agency "sample" actually was a census of supervisory personnel in four state and federal agencies (State Water Commission, Bureau of Reclamation, Soil Conservation Service, United States Forest Service) responsible for directing much of the activity of resource development in the study region.

General sample size (n=310) was proportionally allocated between rural and incorporated areas (40% vs. 60%) and required 64 replacements (20.6%) to compensate for respondents lost through refusals, not-at-homes and vacant homesteads. The community leader sample, considerably smaller (n=40), required 10 replacements (25%) due to refusals, etc. Method of data collection in both these instances was through personal interviews. The agency census (n=78) was approached through a mail-type questionnaire which secured an 83% response rate in light of the 94 respondents originally contacted. Given that this procedure was a census, no replacement for missing returns was possible.

Field work was completed in the late summer and fall of 1973. Two attempts were made by interviewers to contact not-at-home respondents. Similarly, two follow-up mailings were used to encourage tardy agency personnel to reply to the mail questionnaire. A five percent subsample was used as a validation check.

Variables discussed in this study were operationalized with closed-ended items which went through at least two pre-test stages prior to actual field work. All coding procedures were verified electronically or were retabulated (for hand-coded items) on a subsample basis to secure at least 90% reproducibility.

Coorientation Indices

Development of indices to assess coorientation relationships became somewhat complex in an attempt to control for contaminants typically present in traditional methods of indexing.

The bases for developing indices were several series of 18 questions concerning regional development (see Appendix A for a description of questions), each to be rated according to importance. General sample respondents were asked to

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complete the scales for their own perceptions of regional development priorities as well as what they estimated to be the priorities of the development agencies. Agency personnel completed the same double list, rating their own perceptions of priorities as well as estimating those of the general sample. Community leaders rated their own opinion as to priorities and estimated those of both general sample respondents and agency personnel, completing a total of three scales.

As alluded to above, indexing accuracy, congruency and agreement are based on noting discrepancies between scalar items. For example, congruency would be assessed for a general sample respondent by measuring the difference in importance he, say, assigns to increasing regional population and what he estimates the agency's rating of this item to be. However, no such one-to-one comparisons exist for the accuracy and agreement relationships. In other words, there is no agency "partner" for direct comparison. Not only does the inequality of sample size among the three groups prohibit pairing, but there exists no conceptual justification for pairing up particular individuals. The same problem holds for the other intergroup comparisons in the study.

To deal with this problem, comparisons were made to the mean scalar values of the second group involved. In other words, a general sample respondent's estimate of his own opinion would be contrasted to the mean agency response for that scale item in deriving an accuracy index. This procedure was followed for all two-group (accuracy and agreement) indexing. The effects of this method are twofold. First, agreement ratings are not reciprocal, meaning that the agreement calculated, based on the individual ratings of the general sample compared to the mean agency responses, will be dissimilar from agreement computed upon individual agency scores contrasted with general sample mean responses. This problem is not encountered with paired data. Secondly, the use of means for comparison represents aggregations of individual differences. The resultant attenuation of variance tends to increase the homogeneity of variance and thereby suppress the range of differences otherwise obtained. This characteristic of our indexing procedure has contrasting effects, depending on what method is used to create the final index from this point on.

The traditional approach to coorientation measures has been to base indices on scale differences--in indexing congruity, the position marked by the respondent as his own opinion would be subtracted from what his estimate of another group's (person's) opinion (perceived attributes, etc.) might be. These differences would

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be summed across all items comprising the range of issues or attributes for which coorientation was to be measured. Other coorientation indices would be constructed in a similar manner. This technique, now almost an institution in the literature, is the D or D^2 method (the squaring of each difference prior to summation being a technique to dispose of directionality and to give weight to extreme differences).

Unfortunately, a number of contaminants beset the traditional approach. While they are discussed in detail by Wackman (1969), McLeod, et al. (1972), and others,[1] the problems, briefly, center on reification of the group other, and contamination of scalar responses by set and projection. The problem of response set refers to individual differences in handling scales, both in terms of the range of the scale respondents typically selected for recording judgments and the variability they habitually show across items. Both these effects persist as errors in the traditional D and D^2 measures. In short, the differences noted by these indices are part coorientational, inaccuracy (or incongruency or disagreement), but also part response set.

The second problem, projection, contaminates particularly the accuracy index. In this situation with conventional D or D^2 measures, it can be argued that accuracy is (1) a result of accurate perception where Person A is able to discern from cues that B communicates an impression of B's cognitions about the object of common orientation (here, regional development priorities), or (2) a result of A projecting some of his own rating of an object to B's presumed response. In this situation, A perceives B to be to some degree the same as or different from himself. The confounding of these two processes serves, according to Wackman (1969) to confuse the conceptual basis of accuracy assessment.

The third problem, reification of the group other, contaminates coorientation studies where groups are compared in that respondents (as in this study) are required to base their assessments of the group other on an "average" of the group members, ignoring individual differences in terms of attribute strength assigned.

Attempts to build assessment of agency reification as an independent measure into our design met with little success in pretest stages in that one major group

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[1] See also: Hastorf, Bender and Weintraub, 1955; Gage, 1952; Cronbach, 1955; Cline, 1964.

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involved, agencies, were highly reified by general sample respondents yielding a comparatively invariate measure of low face validity. Other comparisons, such as between community leaders and the general sample or agencies and the general sample, have no check for the level of reification implied in judgments of the group other. In short, we have some basis for assuming a high level of agency reification and consequently less violence done to possible individual differences in that group, but essentially with this possible exception, reification persists as an unresolved question in this analysis.

Fortunately the other two basic problems were more tractable. Rather than contrasting differences in scalar responding for coorientational comparisons, scale pairs may be correlated to yield an index of "profile similarity." This measure reflects the similarity of pattern in scale use rather than absolute scalar differences. The effect is equivalent to adjusting the mean of each subject's responses across both sets of scales to zero and the standard deviation to one--standardizing scales and deriving "corrected" D^2 measures or correlating the scale set pairs--will yield analogous indices, their functional relationship being: Corrected $D^2 = 2(1-r_{xy})$.[1]

For projection contaminants of accuracy, the profile similarity method allows the respondent's agreement with the group other to be partialled out, controlling for this problem.

A minor problem remains, given our method of using means for second group comparisons in constructing indices. As mentioned above, this procedure for the group affected attenuates response variance over what might obtain had raw scores been used. With the D and D^2 methods, this condition should have little effect, since attenuation effects upon absolute differences across scale pairs will tend to cancel out. However, with the profile similarity technique, attenuation of variance will suppress the extent of co-variance which might have been present

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[1] A number of precautions are necessary in using "profile similarity" measures, largely regarding the assumptions of linear regression (principally the distributional normality of scales used and the number of scales used overall). Our scale set (see Appendix A) was comprised of 18 scales, which should be considered a minimum number at best. A check of scale distributions showed no instance of marked skewness. Further comment on the drawbacks of this method should be pursued in Wackman (1969) and McLeod et al. (1972).

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with raw scores. Because the resulting correlation is lowered, the corrected D^2 difference will tend to be somewhat exaggerated. By comparison, this condition should result in congruency-corrected differences which are somewhat less than those for accuracy and agreement, all else being equal, since the congruency index is based entirely on raw scores (each subject is "a pair" with himself). Since most comparisons demonstrating hypotheses are between indices computed on the same conditions, this problem is of little concern. However, its effects slightly contaminate the CONG comparisons in Table 1.

For all analyses in this study involving coorientation measures, the profile similarity or synonymous "corrected D^2" method were used in their computation. Accuracy comparisons were also corrected for projection bias. To illustrate the contrast in findings between these methods and the traditional D^2 approach, results in Tables 1 and 2 are computed using both methods. Conclusions, however, are based on the profile similarity measures.

Stereotyping

Our methods of assessing stereotyping bear general resemblance to those employed by Carter (1962) and close similarity to those used by Stamm, et al. (1974). Seven scales, determined by pretest and previous studies to represent well dimensions of agency evaluation, were rated by all three sample groups in terms of whether the scalar attribute applied most or some of the time, namely or not at all to development agencies.

An index of homogenization was obtained by determining the similarity in the use of scale positions. For each different scale position from the four possible across the seven scales, the respondent was given a "1." Redundant scale positions were scored "0." For example, a respondent who duplicated no scale position across at least four of the seven scales would achieve a "perfect" score of 1 + 1 + 1 + 1 = 4. Contrariwise, an individual responding that four or more scales applied "most of the time" to agencies would be scored 1 + 0 + 0 + 0 = 1. Most respondents, with very few exceptions, completed all 7 scales. Blank and IDK

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scales (few) were recoded to the group mean position for that scale.

Polarization was indexed by assigning a value of "1" to scales where the "most of the time" category was checked. Other scale positions were scored "0." Thus an individual marking all seven scales with the "most of the time" extreme would have a score total of 7. In the relatively few instances where scales were marked "IDK" or left blank, the scale was scored "0."

Finally, a measure of response variance was calculated for each respondent by calculating the mean variance for a given individual across the seven scales.

Collective Involvement

Measures of collective involvement were particular to resource development in western North Dakota and were of two levels. The first was simply recognition of others as sharing the respondents' feelings about resource development, namely:

> "In connection with the plan for the Knife River Basin (Western North Dakota) are there any groups or individuals you think of as sharing your feeling about the plan?"

The second level noted a more intense sort of participation, asking:

> "Also, in connection with this plan, are you involved with any groups that are taking definite action either supporting or opposing this project?"

Both were dichotomous (yes/no) items which served to preface a detailed listing of individuals and groups actually involved. These listings served, for present purposes, as a cross check on the item answered.

Path Analysis Variables

Operationalization of additional variables involved in the several path analyses we performed are fully described in Appendix C. The first set of variables, information inputs, were selected largely on past merits of having been common to much communication research and, as well, of having shown rather high levels of predictive merit across a wide range of measures of communication effectiveness. These included:

*Contact with agency representatives in the past year.

*Recall of specific discussion with agency representatives or coal and water development problems (for community leaders only).

*Amount/week of local TV news; local press and regional press use. Most respondents received local papers (small town

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weeklies) exclusively, supplemented by regional (larger city) papers on a daily or Sunday only basis.

*Interest and action group involvement. These items refer to the two "collective involvement" variables discussed above.

The second set were stereotyping components: homogenization and polarization. The final set were items indicating the respondents' evaluation of information from agencies, including:

*Familiarity with agency programs. Respondents listed agency programs with which they were familiar. Recall of at least one program was scored "yes," otherwise, "no."

*Feels agency sees same cost or benefits from development projects as respondent. This, too, was a dichotomous item.

*Perception that agencies listen to public opinion. This was rated on a five-step scale ranging from "they all listen" to "none of them listen."

*Index of information adequacy was completed only by community leaders who rated this characteristic across five categories of information needs pertinent to coal development. Index values ranged from "5" (information adequate in all five categories) to "0" (information inadequate in all categories).

These variables were included to serve as self-report indications of having a good informational base on which to assess agency viewpoints toward development (accuracy). Our motives for incorporating these variables were twofold:

1. To see if the informational bases contributing to accuracy are consciously recognized, or
2. Whether there is a tendency for people to believe they have a good informational basis without that being demonstrated in accuracy scores.

These variables were arranged in a hypothetical time-causal path model. Stereotyping and information-evaluative variables were positioned to intervene information input and criterion (accuracy) variables. The logic for this arrangement, beyond that suggested by the variables themselves (information input would precede evaluation of information presumably coming from inputs, for example), was intuitive, meaning that our conceptual bases for this ordering beyond points mentioned were minimal.[1]

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[1]Path analysis of the type used here assumes relationships (paths) among variables are linear, additive and causal. In communication research, where relationships

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Stepwise regression was used to trim the model of statistically non-significant ($p>.05$) paths. Intercorrelations among predictors and the number of predictors retained in the model were sufficiently low to avoid multicolinearity and problems of over-identification. Methods used in the analysis are described in Kline (1972) and Blalock (1971). Dichotomous variables were dummy coded for regression analysis.[2]

RESULTS

As alluded to earlier in this paper and in earlier work by the authors (Bowes & Stamm, 1974), accuracy was the most discrepant coorientational relationship, reflecting strongly the information problems in our three-group system. The findings of Table 1 bear out these conclusions, showing accuracy to be the most discrepant across all comparison situations with agreement and in half of the comparisons with congruency. Ironically, the least accuracy discrepancies were noted for agency (AGCY) comparisons in their attempt to coorient with the public. This point, more clearly demonstrated in Table 2, runs counter to the notion of governmental agencies existing in a vacuum, unconscious of public attitudes.

The anticipated role of community leaders as mediators or information brokers received little support. As shown in Table 2, rows 1 and 2, comparison of COML-AGCY and COML-GENS with GENS-AGCY and AGCY-GENS means respectively, show no significant differences, indicating that community leader accuracy with the general sample and the agencies is no better than these latter two groups have with each other. This problem is compounded by examination of congruency scores in the same comparison circumstances (Table 2, rows 4 and 5) where COML congruency is higher or near significantly higher (row 4, 5-CD[2] $p \leq .065$) than GENS or AGCY have for each other. This position of community leaders is somewhat ironic,

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are often non-linear, non-additive and reciprocal, caution should be used in interpretation of these models.

[2]Readers should note that this process involves assumptions about empirical reality in terms of variables acting in an "all or none" fashion, one that is rarely met with total success with social variables.

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though perhaps typical. Basically, leaders perceive themselves equally close to both of the other groups in outlook; in reality, they are as discrepant from agency and general sample positions as these latter groups are from each other.

The point of departure for variables more specifically considered in the present analysis was to examine their role as antecedents of coorientational accuracy. Stereotyping proved to be rather inconsistent, both in terms of the logical fit of its subcomponents (variance, homogeneity and polarization), and also in its predictive merit across the three sample groups. Our expectation was that highly stereotyped individuals would show in the extreme, low variance, high polarization together with high homogenization of attributes. This pattern was not really apparent in means presented for the three basic sample groups in Table 3. General sample respondents, for example, who had low polarization by comparison to community leaders, also had comparatively low homogeneity (the lower the value, the more homogeneous) and variance. Community leaders by comparison to the other two sample groups showed the highest level of polarization, but also the highest levels of variance and lowest homogeneity. Agencies, in evaluating themselves, showed the least polarization but relatively high homogeneity and low variance. Thus these three components seem to show considerable independence, systematically, across groups of each other. Intercorrelations among these components (see Appendix B) are lower than one might expect, particularly for polarization and homogeneity, in light of their forced interdependency due to the way in which they are derived from the same scale set.

This lack of dependency among components was not entirely unexpected in light of similar findings by Carter (1962) for homogenization and polarization of attributes. Focusing on the component which, according to Carter, may provide sufficient conditions for stereotyping--polarization--we find agencies to be least polarized on this scale and community leaders, on the contrary, to exhibit the greatest polarization. While this might be expected, since agency people are essentially evaluating agencies like theirs (and therefore might be expected to be sensitive to inter-agency differences), the high polarization by community leaders seems unsupportive of their abilities as effective information brokers between agency and general public.

The performance of stereotyping components as predictors of coorientational accuracy varied considerably over the three sample groups involved. The data indicated in Table 4 show considerably greater predictive weight for the three

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components of stereotyping in community leader and agency accuracy comparisons (R^2=.1808 and .1859 respectively) than for the general sample (R^2=.0028). The most facile explanation for this is that other characteristics better determine general sample accuracy than stereotyping. While this theme will be expanded later in the paper, it is also possible that stereotyping indices were not as sensitive for general sample respondents. A comparison of distributions across groups for these variables showed that all were within normal limits and variance, discounting considerably this explanation.

Variance was the least successful predictor of accuracy, a condition no doubt due to its confounded status with respect to the other two stereotyping components (note intercorrelations, Appendix B). Consequently, the independent predictive strength of this component is reduced by the other two. Because this component lacked both a clear conceptual base and a significant predictive relationshipto accuracy, it was dropped from further analysis.

Homogeneity showed consistent effect of accuracy in the two conditions where it achieved statistical significance (COML-AGCY; AGCY-GENS). In both instances, greater homogeneity was associated with improved accuracy. This finding suggests that certain elements of stereotyping are not necessarily harmful to accurate perception of events. Rather, as Carter (1962) suggests, homogenization might be indicative of achieving a stable image of events.

Polarization showed inconsistent effects in the two conditions where it had statistical significance as a predictor. Community leader polarization had the strongest effect of the three predictive components and served to reduce accuracy. (Higher "accuracy" scores indicate increasing <u>in</u>accuracy.) Results for agency polarization seem perplexing, showing as they did a reversal from the community leader condition. In this instance, accuracy tended to be more among those with strongly polarized images of agencies. This inconsistency may be slightly easier to accommodate if one realizes that agency people were essentially being asked to rate scales evaluative of agency performance, a considerably different circumstance from that facing general sample and community leader respondents. Moreover, scale items (see Appendix D) were developed from general sample respondents' descriptions of agencies, taking little account of possible

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items sensitive to how agency people rate their own organizations. Potential for scalar inappropriateness[1] doesn't give firm rationale to an inconsistency which eludes simple plausible explanation.

Generally, these findings tend to reinforce the notion that stereotyping is not a simple, unidimensional concept, but rather one which shows (with present evidence) at least two divergent dimensions not necessarily aligned with diminished coorientational accuracy. Moreover, for practical purposes of describing communication problems in the present three-group system, the polarization of agencies and related loss of accuracy by community leaders speaks poorly of their potential success as information brokers. Homogeneity, however, seems for both agency and community leaders a positive contributor, perhaps indicative of a process of image formation to accuracy. Our original expectation that polarization would be a stronger contributor to inaccuracy thus seems at least partially supported.

The notion of group involvement in this analysis was approached from two levels of magnitude. The first, indicative of minimal group involvement, is the recognition of others sharing views with the respondent. The second, greater level, is participation in a group taking definite action for or against resource development. This approach, we anticipated, would be more sensitive to informal alliances and minimal level participation than a more traditional listing of formal organizations to which one belongs. The effects of "collective involvement" on accuracy are summarized in Table 5. Action group involvement did act to improve accuracy of general sample respondents while interest groups did not. The latter measure of involvement--awareness of others of like interest--for a positive response makes few demands for any behavior with others concerning resource development. These feelings of social support, consequently, did little to enhance accuracy. Due to the few numbers involved, we were unable to repeat this determination for community leaders.

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[1] To avoid this problem in an earlier study (Stamm, et al., 1974), the authors asked respondents to (a) generate terms describing the group other, then (b) to indicate reification based on those terms in a manner parallel to the stereotyping indices generated in the present study. This method has the obvious virtue of tailoring descriptive attributes to the respondent. In the present analysis, time considerations and a descriptive need to compare groups on common attributes of agency perception ruled out this likely more sensitive and valid approach.

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To see if group participation had an effect on perceived similarity to agency development viewpoints, we performed a similar analysis for the congruency relationship. For general sample respondents, involvement with others showed little relationship to congruency. However, involvement by community leaders with interest groups did bring about a considera ble improvement in congruency. Thus we have the ironic situation for community leaders where low level group involvement serves to increase the impression of being close to agency views where one's demonstrated ability to perceive those views is defective. As alluded to previously in similar instances, these findings offer little promise of community leader abilities as information brokers.

Because our community leader sample was too small to offer stable comparisons for action groups, there is little generality to the lone finding of action group effect among general sample respondents. However, as the congruency analysis indicates, it would be premature to dismiss low level interest group involvement as not affecting intergroup perceptions. In the present study, the increase in community leader congruency with agencies may be in part due to these "low level" groups being composed in part of agency personnel, or it may be indicative of a pro-development consensus operating in community leader groups which reinforces the view that agency views are not very discrepant from their own. A less speculative rationale awaits further investigation. Finally, there is little we can definitively say with present data about the effects of ambiguity of the resource development situation and the power of group influence. Our suspicions are that action group influence may be enhanced over group members in this sort of setting. Certainly the idea seems worthy of additional field tests beyond the rather contrived "lab" settings which have demonstrated this relationship to date.

The vitality of stereotyping and collective involvement as determinants of accuracy while at least partially supported in a bivariate situation should be checked against plausible alternatives. For example, what is the relative importance to accuracy of group involvement as opposed to media exposure or direct contact with agency field representatives? Moreover, if stereotyping mediates receipt of information about agencies and consequent accuracy in perceiving them, which information sources tend to reinforce stereotyping, which minimize it? For example, are groups, because of the social control they can exercise, promoters of stereotypes? More precisely, do they aid homogenization and polarization and

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to what extent for these two components individually? Also is there a relationship between coorientational accuracy and an overt awareness of it? It seems questionable to what extent a subject recognizes this phenomenon by completion of a double listing of scales. Finally, can these questions be juxtaposed to examine each in relation to the others?

As an admittedly speculative excursion, smacking perhaps of a data-then-concept approach, we arrayed three sets of variables in a hypothetical causal sequence to demonstrate their interrelationships and ultimate predictive merit for coorientational accuracy. The sequence for the general sample--agency accuracy relationship--is shown in Figure 2. Arrows in the model denote presumed direction of influence, while weights for each indicate magnitude and direction of the relationship.[1]

Perhaps the most striking finding in this path analysis is the comparatively few antecedents of accuracy determined. Direct effects from information sources are only two: local television news and action groups. Ironically, local TV news serves slightly to reduce accuracy. Whether this is a direct effect of inaccurate information being disseminated is hard to positively determine. However, the marginal TV service available to much of the area with generally small news operations does not encourage thorough coverage of complex issues such as energy development and may displace more productive information services. Action group participation, contrariwise, does increase accuracy, reflecting that conclusions drawn from the general sample data in Table 5 hold with other forms of information acquisition controlled.

Stereotyping components, polarization and homogeneity show marginally significant relationships with information source variables. Though information sources tied to each contrast, the effect is the same: both polarization and homogeneity are reduced with increased source contact. Increased contact with agency personnel serves slightly to reduce homogenization of agencies, while action group involvement reduces the level of polarization of attributes. This

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[1]Weights are regression coefficients (standardized beta weights), representing the independent predictive contribution variables presumed to be causally antecedent.

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latter relationship, though not substantial, does suggest that membership in action groups helps reduce rather than increase polarization.[1]

The stereotyping components failed to have direct effects on accuracy, though polarization was negatively related to self-report familiarity with agency programs and an impression that respondent and agency perceive the same cost/benefits to regional development. Thus, less polarized individuals feel more familiar with agency programs and see greater similarity between their own and the agency's view of development advantages and problems; however, these comforting feelings are not reflected in "real" accuracy.

This failure of self-report familiarity, together with only a weak relationship shown between the second self-report measure--feeling that the agency sees the same cost benefits for development and increased accuracy, demonstrate the invalidity of this type of measure as a gauge of accuracy. Too, they demonstrate the distance between subjective impression and demonstrated ability in attaining accuracy. Yet self-report familiarity showed the strongest connections with regional press agency and group exposure (path coefficients respectively of .1051, .2112 and .3398). Especially interest group involvement seems to spawn an impression of agency knowledge without substance. Thus, highly used common information sources not only fail to serve accurate perceptions of agencies, but give the misleading impression that they do.

An impression that the agency "listens" and is responsive to public opinion was less among those with TV exposure, a finding congenial to the impression

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[1] This finding runs contrary to the implications in an earlier study (Pearce, et al., 1971) which found campus strike activists to be more polarized on issues, largely as a function of in-group self-persuasion. The focal point of this study was campus activists protesting US Vietnam policy and the Kent State shootings, a situation of then considerably greater emotional intensity and divisiveness than usage of energy resources. Moreover, measures of polarization were group characterizations, based on responses to political questions (e.g., agree/neutral/disagree on Cambodian troop deployment). These measures are considerably different from the attribute measures employed in this analysis, where to rate as highly polarized, the respondent would have to be at the extremes of both positive and negatively valenced attributes descriptive of agencies. In short, the Pearce, et al., study examined more opinion polarization than it did a cognitive preference for picturing events in extremes regardless of the pro vs. con quality of attributes. The differences perhaps account for the divergent findings.

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that agency public relations problems are made most visible on television. Our expectations that feelings of agency accessibility would lead to accuracy and perceived familiarity with agency programs did not materialize.

A somewhat similar set of relationships resulted in the path analysis predictive of community leader-agency accuracy (Figure 3). With two exceptions, variables employed were the same. An additional information source variable, indicating if the leader discussed problems of resource development with agency personnel, and a self-report variable rating adequacy of development information were incorporated into the model. Our expectation that community leaders would be especially sensitive to the information sources and hence reflective of their heightened accuracy in perceiving agency views were not met. No information source variables showed direct effect on coorientational accuracy. Two sources, regional press use and action group involvement, showed indirect relation, mediated by homogeneity. The two information sources acted differentially upon homogeneity, regional press use reducing homogenization of attributes while action group involvement tended to increase this effect. In turn, homogenization improved accuracy, perhaps as suggested earlier, indicating that a stable image had been formed about development agencies. Action group involvement for community leaders most likely centers on civic or regional planning and regulatory groups which would encourage a stable image of agencies and homogenization. Regional press information, to the contrary, might serve to diversify for leaders the types of images applied to agencies, increasing heterogeneity of attributes. Polarization had no significant effect, direct or indirect, upon accuracy.

The strongest causal relationships shown in the model were between information source and information self-report variables. Local press use, and involvement in interest groups, were especially predictive of an enhanced feeling that agencies and the respondent perceived the costs and benefits in connection with development. Action group involvement tended to counter or reverse this impression. Contact with agency personnel and (especially) discussion of water and coal development problems with them were strongly predictive of reported familiarity with agency programs. Indirectly, contact with the agency, local press use and regional press use fostered an impression that "agencies listen," which in turn aided reported familiarity with agency programs. Consequently, most information source variables served to increase the respondents' impression of

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familiarity and sameness with agency programs and views. As in the previous analysis for general sample respondents, these subjective impressions were not backed by more objective measures of accuracy.

Finally, it is interesting to note the lack of any significant linkages to local television news as an information source. Clearly, other sources have edged television aside as a predictor of accuracy. Given the negative contribution to accuracy of television news for the general sample, this lack of effects should not be mourned.

SUMMARY AND CONCLUSIONS

In general, the variables of primary concern to this analysis, stereotyping and collective involvement, did not fulfill expectation in their anticipated strong, consistent impact on coorientational accuracy, particularly when arrayed with other variables in the path analysis. Nor did we find especially strong or consistent effects of group involvement on stereotyping. Perhaps the most noteworthy finding from these analyses is the lack of direct effects of information inputs on accuracy, but instead on subjective impressions of agreement (sees same cost/benefits) and familiarity with agency programs. These impressions, sadly, were not in turn related to accuracy.

In our earlier bivariate analyses of stereotyping and collective involvement, certain regularities were shown and perhaps should be considered persuasive given the hazardous assumptions of path analysis. Homogeneity was consistent in showing improved accuracy, while polarization reduced accuracy for community leaders while results for agencies were reversed. The variance component of stereotyping failed to bear any significant relation to accuracy.

The conceptual merits of these findings also warrant mention. Stereotyping, as described earlier by Carter (1962), was shown to be a concept of at least several dimensions. Homogeneity consistently had positive effects on accuracy, indicating that this component, rather than harmful to perception of the group other, likely enhances stable image formation. Polarization was more elusive, performing, as expected, as a negative influence on accuracy for community leaders, but as a positive influence for agency personnel. Collective involvement also contributed to explanation of accuracy in its strongest form--action groups--but could be tested only for one of the sample groups. The effect

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of low level involvement requires further investigation, both in a measurement sense and in better establishing its consequences for coorientational accuracy. Moreover, its potential for influencing congruency should be further examined.

The lack of association with coorientational accuracy of a broad range of communication variables need not be regarded only as a problem in identifying antecedents. It also raises questions about the utility for diagnostic communication research of current operationalizations of the concept. These difficulties in establishing strong empirical analysis of the concept, coupled with pervasive measurement problems, suggest that subsequent methodological efforts will pay off more at the conceptual than the operational level. Certainly the illustrations we have provided in Tables 1 and 2 of the diversity in outcomes with the same data--depending on computational method used--suggests something more than respect for biases inherent in coorientation measures. We make these cautions as much to ourselves as to other would-be coorientation researchers.

In a more immediate, descriptive sense, this study signals the presence of serious communication deficiencies in a situation requiring the best of conditions. The often assumed ability of community leaders to negotiate and transfer information between agencies and the public is no better than these latter two groups achieve on their own. Polarization of agency attributes and consequential inaccuracy was strongest for this sample group. Group involvement rather than fostering accuracy, led instead, for the low involvement condition, to greater congruency, giving leaders the false impression that they were closer to agency viewpoints than in reality they were. Finally, the ineffectiveness of media, organizations, and agency sources, in aiding the population of this development region to better understand agency development priorities, suggests a re-examination of public relations policy by the agencies and of coverage by media.

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REFERENCES

Allport, G.W. (1937). Personality: A Psychological Interpretation. New York: Holt.

Asch, S.E. (1951). "Effects of group pressure upon the Modification and Distortion of Judgements." In H. Guetzkow (ed.), Groups, Leadership and Men. Pittsburgh: Carnegie Press. Pp. 177-190.

Blalock, H.M. (1970). Causal Models in the Social Sciences. Chicago: Atherton-Adline.

Bolle, Arnold A. (1971). "Public Participation in Environmental Policy." Natural Resources Journal, 11(3): 497-505.

Bowes, J.B. and K.R. Stamm (1974). "Communication during Rapid Development of Energy Resources: A Coorientational Analysis." Paper delivered to Information Systems Division, International Communication Association, New Orleans, La.

Bultena, Gordon; David Rogers, and Vince Webb (1973). "Public Response to Planned Environmental Change: A Study of Citizen Views and Actions on the Proposed Ames Reservoir." Department of Sociology, Iowa State University, Ames, Iowa.

Carter, R.F. (1962). "Stereotyping as a Process." Public Opinion Quarterly, 26: 77-91.

Chaffee, S.H. and J. McLeod (1968). "Sensitization in Panel Design: A Coorientation Experiment." Journalism Quarterly, 45:237-245.

_____ (1973). "Individual vs. Social Predictors of Information Seeking." Journalism Quarterly, 50: 237-245.

Cline, V.B. (1964). "Interpersonal Perception." In B.A. Mather (ed.), Progress in Experimental Personality Research, vol. 1. New York: Academic Press, pp. 211-284.

_____ and J.M. Richards, Jr. (1960). "Accuracy of Interpersonal Perception--A General Trait?" Journal of Abnormal Social Psychology, 60:1-7.

Cronbach, L.F. (1955). "Processes Affecting Scores on 'Understanding of Others' and 'Assumed Similarity.'" Psychology Bulletin, 52:177-193.

Flament, C. (1959). "Ambiguité du Stimulus, Incertitude de la Response et processus d'influence Sociale." Summarized in G. Lindzey and E. Aronson (eds.), Handbook of Social Psychology, V. Reading, Mass.: Addison-Wesley, pp. 237-350.

Gage, N.L. (1952). "Judging Interests from Expressive Behavior." Psychological Monographs, 66: No. 18 (whole no. 350).

Groot, Hans C. (1970). "Coorientation in Agricultural Development: the Interrelationship between Farmers, Change Agents and Scientists." Paper presented to the Association for Education in Journalism, Washington, D.C.

Grunig, J.E. (1972). "Organization-Clientele Communication and Community Development." University of Maryland, Department of Journalism (mimeo).

BEST COPY AVAILABLE

Hastorf, A.H., I.E. Bender, and D.J. Weintraub (1955). "The Influence of Response Patterns on the 'Refined Empathy Score.'" Journal of Abnormal Social Psychology, 51:341-343.

Kelly, H.H. and E.H. Volkart (1952). "The Resistance to Change of Group-Anchored Attitudes." American Sociological Review, 17:453-465.

Kline, G. (1972). "Cross Sectional Designs for Communication Research: Path Analysis." Paper presented to the session of advanced methodology, Theory and Methodology Division, Association for Education in Journalism, Carbondale, Ill.

Laycock, G. (1969). The Diligent Destroyers. New York: Ballentine.

Ludtke, R.L., K. Stamm, J.E. Bowes and R. Kingsbury (1971). "Social and Economic Considerations for Water Resources Planning in the Park River Subbasin, North Dakota." University of North Dakota Research Report #2 (mimeo).

McLeod, J.M., L. Becker and W.R. Elliott (1972). "Exploration of Methodological Problems in Coorientation Research." Paper presented to the Theory and Methodology Division, Association for Education in Journalism, Carbondale, Ill.

Pearce, W.B., K.R. Stamm, and H. Strentz (1971). "Communication and Polarization during a Campus Strike." Public Opinion Quarterly, 35:228-235.

Riley, J.W. and M.W. Riley (1959). "Mass Communication and the Social System." Robert Merton, et al. (eds.), Sociology Today. New York: Basic Books.

Shils, E.A. and M. Janowitz (1948). "Cohesion and Disintegration in the Wehrmacht in World War II." Public Opinion Quarterly, 12:280-315.

Stamm, K.R. (1973). "Environment and Communication." F.G. Kline and P. Tichenor (eds.). Current Perspectives in Mass Communication Research. Beverly Hills: Sage, pp. 265-294.

_____ and J. Bowes (1972). "Communication During an Environmental Decision." Journal of Environmental Education, 3:44-55.

_____B. and J. Bowes (1974). "Coorientation Variables and Stereotyping: An Analysis of the Generation Gap." Paper presented to the Theory and Methodology Division, Association for Education in Journalism, Carbondale, Ill.

Stone, G.C., N.L. Gage, and G.S. Leavitt (1957). "Two Kinds of Accuracy in Predicting Another's Responses." Journal of Social Psychology, 45:245-254.

Wackman, D.B. (1969). "A Proposal for a New Measure of Coorientation Accuracy or Empathy." Paper presented to the Association for Education in Journalism, Washington, D.C.

Wiener, M. (1958). "Certainty of Judgement as a Variable in Conformity Behavior." Journal of Social Psychology, 48:257-263.

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APPENDIX A

The following is a listing of scales used to establish coorientational indices. General sample, community leader sample and agency census respondents were given the same sets of scales. For rating the respondents' own priorities for regional development, the instructions were:

> "We'd like to find out what problems you feel should be most important in planning water control and regional development in this area of the state (Knife River Basin). I'm going to read a list of goals for development projects. For each one, tell me if you think it's "very important," "important," "somewhat important," or "not important."

For rating the comparison groups' priorities, instructions were:

> "Now try to imagine how agencies (the general public in this region) might view these same problems. So for these next questions, try to answer them as you feel someone in a government agency might." (Second sentence not read to agency personnel.)

Community leaders were asked to rate the general public as well as agency personnel. Wording in the latter instance was the same as above. For the former:

> "Now put yourself in the position of telling regional and federal development agencies what your community feels its development priorities are. We want your impression of community preferences as you see them, not your own. For each development need, tell me if the community feels it to be "very important," "important," "somewhat important," or "not important."

Wording of instructions for the agency census was modified somewhat in that their questionnaire was a self-administered mail-in type. Scale items were:

	Very Important	Important	Somewhat Important	Not Important	IDK
Maintaining or increasing wildlife areas is...					
Consulting citizens and groups about local problems is...					
Maintaining or improving the standard of living is...					
Bringing in heavy industry such as coal mining is...					
Increasing agricultural productivity is...					
Improving and increasing recreational areas is...					

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	Very Important	Important	Somewhat Important	Not Important	IDK
Increasing the population of the region is...					
Improving flood protection is...					
Creating jobs for young people is...					
Preserving the present style of living in the area is...					
Improving highways and transportation is...					
Improving health and medical services is...					
Maintaining or increasing scenic areas is...					
Developing the tourist potential of the area is...					
Improving and extending the telephone and electrical service of the area is...					
To improve contact with extension agents and conservation service people is...					
To improve schools and other educational institutions is...					
To improve police and fire protection is...					

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APPENDIX B: Intercorrelations of stereotyping components for general sample, community leader and agency respondents.

RELATIONSHIP	GENS r	COML r	AGCY r
Homogeneity/Polarization	.0037	.0149	.3636***
Homogeneity/Variance	.3542***	.1295	.5209***
Polarization/Variance	.2164***	.2276	.3282**
(h)	(3.0)	(40)	(78)

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

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APPENDIX C

The following are variables incorporated into the path analyses found in figures 2 and 3. Wording and approximate position in the questionnaire for items was the same for general sample and community leader respondents.

a. Familiarity with agency programs:

"Agencies such as the State Water Commission, the Bureau of Reclamation and the Soil Conservation Service have drawn up plans to improve water supply and control in this region. Are you familiar with any of their recent programs, say, in the past two years?"

(If Yes) "Which of these programs do you recall?"

b. Media use:

"About how many times in a week do you...

...watch local TV news?
...read a local newspaper?
...read an out-of-town newspaper?

c. Interest and action group involvement:

(Interest groups) "In connection with the plan for the Knife River Basin, are there any groups or individuals you think of as sharing your feeling about the plan?" (If yes) "Which groups are they?"

(Action groups) "Also, in connection with this plan, are you involved with any groups that are taking definite action either supporting or opposing this project?" (If Yes) "Which groups are they?"

d. Stereotyping indices: See Appendix D.

e. Contact with agency representatives:

"First, about how many times in the past year have you been contacted by--or have gotten in touch with--an extension agent, someone from the soil conservation service or a representative from the Bureau of Reclamation?" (Response alternatives) Non/once or twice/three to six times/seven to twelve times/ more than twelve times/IDK.

f. Feels agency sees the same cost/benefits to development projects:

(Having previously determined that the respondent states he is familiar with development projects) "Do you believe the agency sees the same benefits and disadvantages as you?" (Response alternatives) Yes/no/IDK

g. Perception that agencies listen to public opinion:

"Do you feel agencies responsible for water management and regional development listen to public opinion?" (Response alternatives) They all listen/ most of

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Appendix C, cont.

of them listen/some of them listen/a few of them listen/none of them listen.

The following two questions were responded to only by community leaders:

a. Recall of specific discussion on water and coal development with agency personnel:

"As part of your civic duties, have you discussed the problems of water management and coal development with state and federal agency representatives in the past year?"

b. Index of information adequacy in five areas of coal development:

"Tell me for each area whether you feel an adequate quantity and quality of information is available to the public or not. For the (first, etc.) area, do you feel the information is adequate or not adequate?

(Areas)
1. Effects of mining on land: damage, effectiveness of reclamation.
2. Legal problems with the land: mineral rights, rights of surface owners, land condemnation and compensation, leasing.
3. Pollution and conservation: effects on wildlife and water supply, water and air pollution.
4. Effects of population increase: new job opportunities, strain on community facilities, taxes.
5. Size and duration of coal development: How much land will coal mining eventually take over; how many years will the development last?

(Respondents were handed a card on which this listing was printed while the item was read.)

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APPENDIX D

The following scales were used to derive the stereotyping indices: homogeneity, polarization and variance.

"Now I am going to read you a list of statements people have used to describe these agencies (respondent previously listed agencies perceived as being involved in development of resources). For each statement, tell me if you think it applies most of the time...sometimes...rarely...or not at all to the agency."

(Statements) Helpful to people
Ignorant of local needs
Honest in telling people about projects
Dependable, do what they say they're going to do
Unavailable for advice and information
Fair in paying for land, dealing with disputes
Wasteful of money and time

TABLE 1: Tests of differences among agreement, contingency and accuracy measures for four sample relationships.

	RELATIONSHIP	MEASURE	AGREEMENT	CONGRUENCY	ACCURACY	t AGREE-CONG	t CONG-ACCUR	t AGREE-ACCUR
(1)	GENS-AGCY	D-SQ	17.605	29.809	26.102	- 5.55***	1.42	- 3.91***
		CORR D-SQ[1]	1.276	1.789	1.863	-10.42***	-1.52	-14.07***
(2)	AGCY-GENS	D-SQ	20.192	18.795	22.82	.449	-1.29	- .735
		CORR D-SQ[1]	1.252	1.279	1.469	- .268	-1.86*	- 2.71***
(3)	COML-AGCY	D-SQ	16.074	17.625	15.732	- .682	.906	.341
		CORR D-SQ[1]	1.203	1.615	1.726	- 3.02***	.758	- 3.94***
(4)	COML-GENS	D-SQ	15.189	14.175	15.986	.546	- .928	- .365
		CORR D-SQ[1]	1.141	0.966	1.477	1.54	-4.196***	- 2.472**

[1] Accuracy corrected D-SQ's are corrected for both projection and response set.

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$
$df \leq 40$

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TABLE 2: Comparisons of accuracy, congruency, and agreement among COML, AGCY, and GENS for squared differences (D^2); corrected squared differences (CD^2); and (for accuracy only) projection corrected (D^2PD^2).

		RELATIONSHIP	MEAN PCD^2	t PCD^2	MEAN D^2	t D^2
ACCURACY						
(1)	vs	COML-AGCY	1.726	-1.304	15.732	-4.242***
		GENS-AGCY	1.863			
(2)	vs	COML-GENS	1.477	.068	15.986	-1.263
		AGCY-GENS	1.469		22.82	
(3)	vs	GENS-AGCY	1.863	6.075***	26.102	1.121
		AGCY-GENS	1.459		22.82	
CONGRUENCY						
(4)	vs	COML-AGCY	1.615	-1.579	17.625	-4.828***
		GENS-AGCY	1.789		29.803	
(5)	vs	COML-GENS	0.956	-2.16*	14.75	-2.89**
		AGCY-GENS	1.279		18.795	
(6)	vs	GENS-AGCY	1.789	3.506***	19.803	4.312***
		AGCY-GENS	1.279		18.795	
AGREEMENT						
(7)	vs	COML-AGCY	1.230	-0.505	16.074	-0.869
		GENS-AGCY	1.276		16.605	
(8)	vs	COML-GENS	1.141	-1.044	15.189	-1.713*
		AGCY-GENS	1.252		20.192	
(9)	vs	GENS-AGCY	1.276	0.383	16.605	-0.949
		AGCY-GENS	1.252		20.192	

* p^a - .05
** p^a - .01
*** p^a - .001
df $\geq$ 40

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TABLE 3: Means and t-test comparisons for three components of stereotyping among general population, community leader and agency respondents.

STEREOTYPING AS:	GENS	COML	AGCY	t-GENS AGCY	t-COML GENS	t-COML AGCY
Variance	3.445	4.520	3.345	.2555	2.0516*	
Homogeneity	2.426	2.675	2.444	- .1720	2.361*	1.835*
Polarization	1.935	2.50	1.487	2.232*	3.566***	

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$
$df \leq 30$

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TABLE 4: Regression coefficients[1] of 3 stereotyping measures with co-orientational accuracy for GENS-AGCY, COML-AGCY and AGCY-GENS comparisons.

STEREOTYPING AS:	GENS-AGCY	COML-AGCY	AGCY-GENS
Variance	.0451	.1321	.1878
Homogeneity	-.0532	.2952*	.3222***
Polarization	.0218	.3205*	-.3041***
R	.0526	.4252*	.4311**
R^2	.0028	.1808	.1859
(n)	(310)	(40)	(78)

[1]Regression coefficients are standardized beta weights and indicate the independent effect of each component of stereotyping upon accuracy with the other two held constant.

8* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

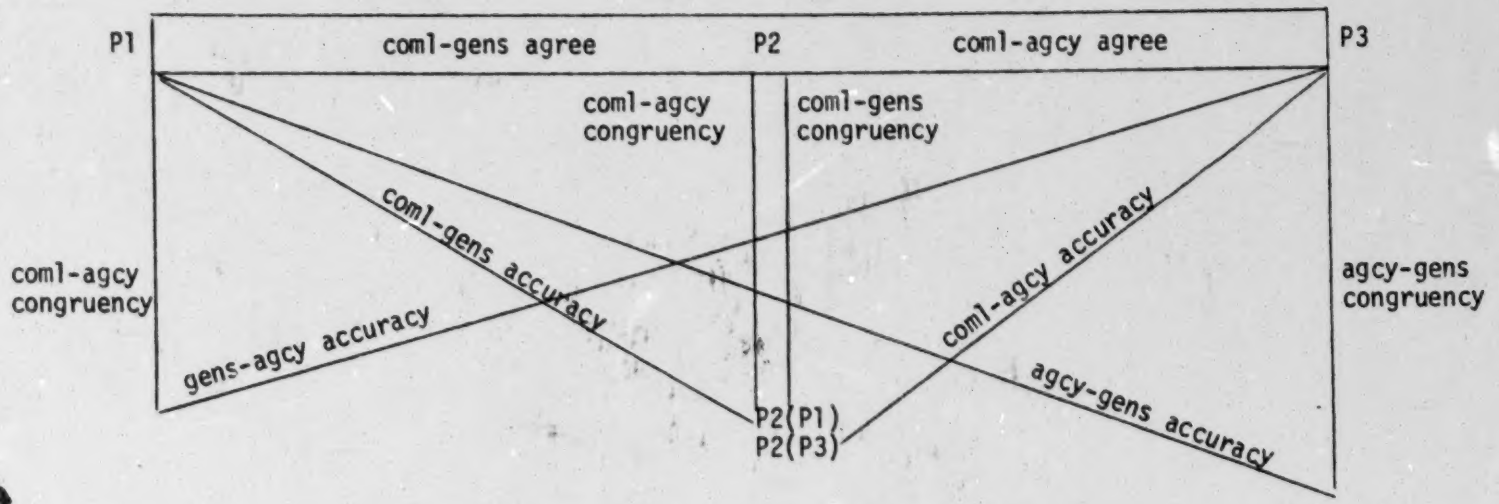
TABLE 5: t-tests for collective involvement predictors of GENS-AGCY and COML-AGCY accuracy and congruency.

GENS	ACCURACY			CONGRUENCY		
	No	Yes	t	No	Yes	t
Involved in action groups	1.8895	1.5495	2.16	1.681	1.974	-1.04
Involved in interest group	1.8757	1.8664	.10	1.7287	1.6624	.51
COML						
Involved in action groups[1]	--	--	--	--	--	--
Involved in interest group	1.8937	1.7719	.50	2.8965	1.4158	4.29*

[1]Frequencies were insufficient for stable comparisons.
*$p \leq .05$, pooled variance estimate.

FIGURE 1: Coorientational relationships among sample groups.

General Sample	Community Leaders	Agency Census
n=310	n=40	N=78
GENS	COML	AGCY



RELATION	ACCURACY	CONGRUENCY	AGREEMENT
GENS-AGCY	P1(P3)-P3	P1-P1(P3)	P1-P3
COML-AGCY	P2(P3)-P3	P2-P2(P3)	P2-P3
COML-GENS	P2(P1)-P1	P2-P2(P1)	P2-P1
AGCY-GENS	P3(P1)-P1	P2-P2(P1)	P3-P1

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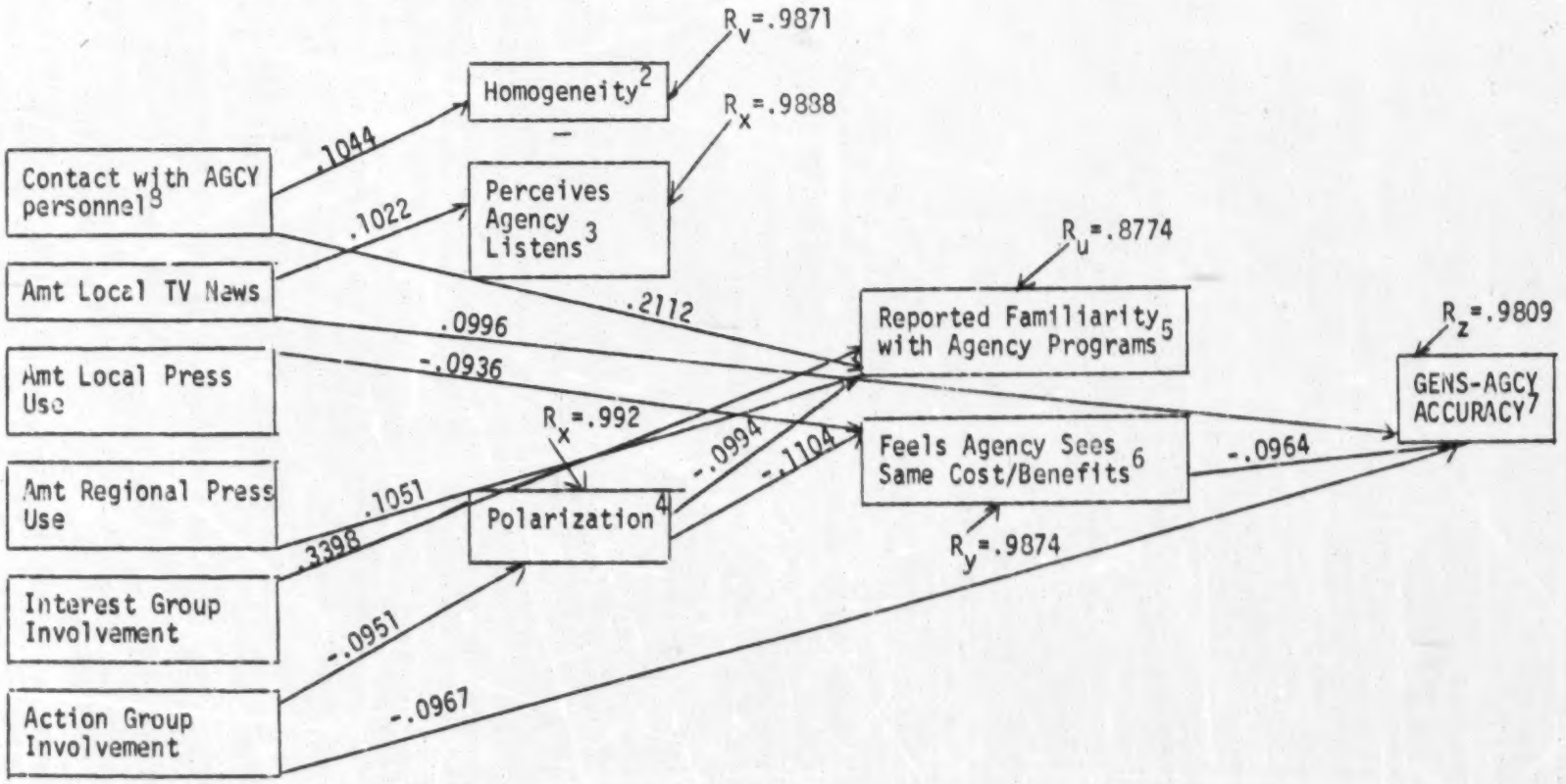
FIGURE 2: Path analysis[1] of hypothetical predictors of accuracy. Path coefficients are standardized regression coefficients (beta weights). Data are for general sample respondents. Accuracy is based on GENS-AGCY comparison.



[1] These are cross-sectional data arranged in a hypothetical time-causal ordering. The model has been trimmed, eliminating statistically non-significant paths ($p>.05$) and all correlations among variables presumed to occur at the same time point in the model.

[2] Higher values = less homogeneity

[3] Higher values = agency listens less

[4] Higher values = less polarization

[5] Higher values = more familiarity

[6] Higher values = sees same benefits/costs

[7] Higher values = less accuracy

[8] Higher values for information input variables = greater use, participation or contact

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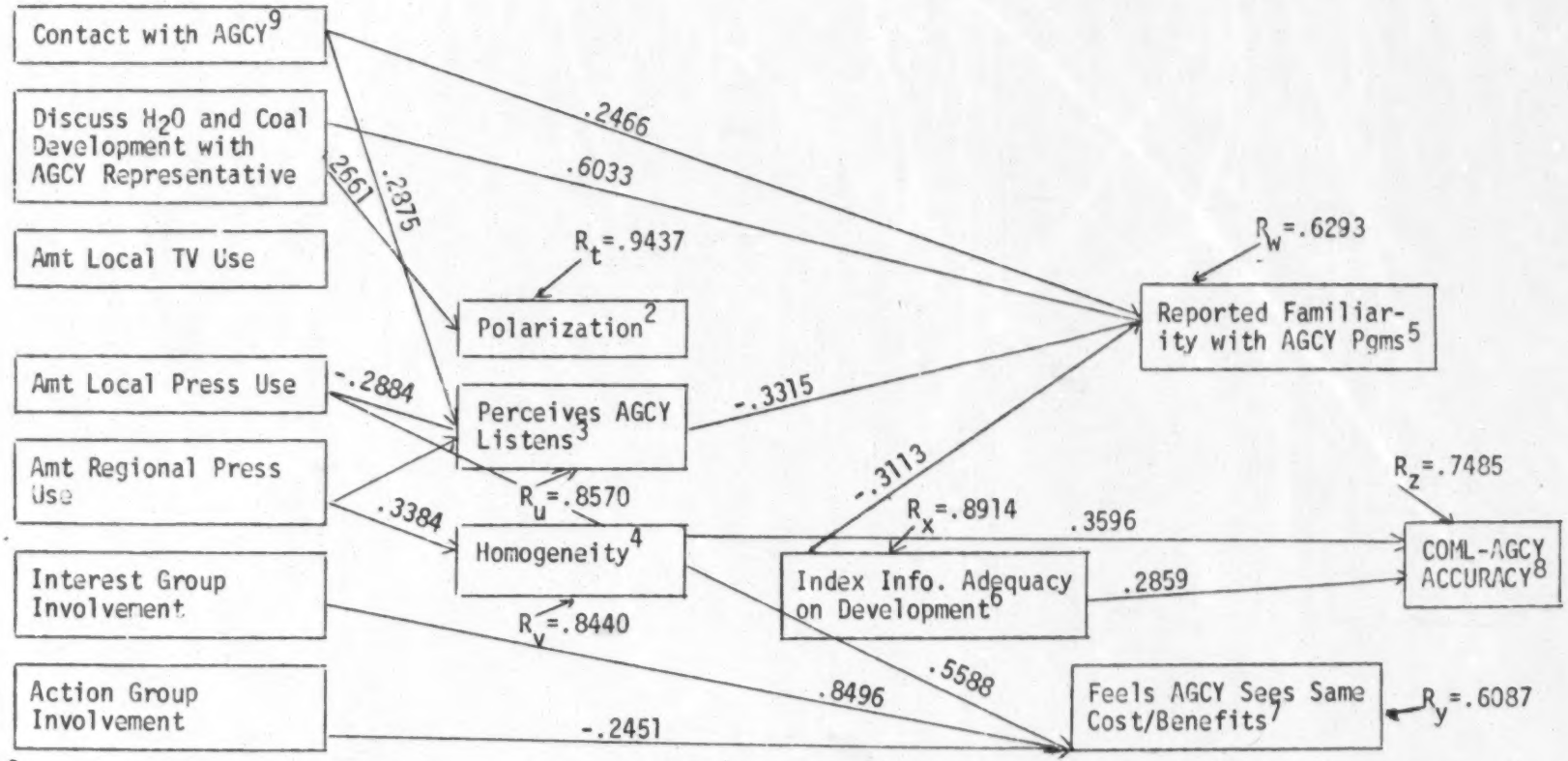
FIGURE 3: Path analysis[1] of hypothetical predictors of accuracy. Path coefficients are standardized regression coefficients (beta weights). Data are for general sample respondents. Accuracy is based on COML-AGCY comparison.



[1] These are cross-sectional data arranged in a hypothetical time-causal ordering. The model has been trimmed, eliminating statistically non-significant paths ($p > .05$) and all correlations among variables presumed to occur at the same time point in the model.

[2] Higher values = less polarization

[3] Higher values = agency listens less

[4] Higher values = less homogenization

[5] Higher values = more familiarity

[6] Higher values = more adequate

[7] Higher values = sees same cost/benefits

[8] Higher values = less accuracy

[9] Higher values info. input var. = more input

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